

March 6, 2014

**Letter – Expression of Interest  
VIA ECFS**

Chairman Thomas Wheeler  
Commissioner Mignon Clyburn  
Commissioner Jessica Rosenworcel  
Commissioner Ajit Pai  
Commissioner Michael O’Rielly  
Mr. Jonathan Chambers  
Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20554

**Re: Expression of Interest, Rural Broadband Trials, Connect America Fund, WC Docket No. 10-90**

Dear Chairman Wheeler, Commissioners, and Mr. Chambers,

This letter is being offered by the partnership between BVU Authority located in Bristol, Virginia and the CPC Company, a company formed by the Cumberland Plateau Planning District for the sole purpose of deploying broadband to the four counties in its jurisdiction, located in Lebanon, Virginia (BVU/CPC). The partnership now has middle mile fiber infrastructure to facilitate services to residents, businesses, and community anchor institutions in an eight county section of Southwest Virginia. BVU/CPC is interested in receiving funding from the Rural Broadband Trials, announced at the January 30th FCC Open Meeting, to bring enhanced voice, data, video, and premise automation and security services to the unserved and underserved rural population.

Thank you for considering our Expression of Interest in your decisions regarding the amount of funding that will be allocated in the Rural Broadband Trials. We commend you in this effort to connect rural communities – providing them with the services and opportunities that are not currently available to them today.

Sincerely,



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# EXPRESSION OF INTEREST RURAL BROADBAND TRIALS

**Connect America Fund, WC Docket No. 10-90**

## Abstract

Partnership between BVU Authority, and CPC Company to bring enhanced fiber broadband voice, data, video, premise automation and premise security services to the unserved/underserved rural population of Southwest Virginia

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Submission Date: March 6, 2014

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## Statement of Purpose

This partnership between BVU Authority located in Bristol, Virginia, and the CPC Company formed by the Cumberland Plateau Planning District located in Lebanon, Virginia (BVU/CPC) desires to provide vital last mile “fiber-to-the-premise” (“FTTP”) to unserved/underserved areas in an eight county region in the Appalachian Plateau located in far southwest Virginia. These eight counties currently have fiber middle mile backbones available, built by BVU/CPC through the National Telecommunications and Information Administration/Broadband Technology Opportunities Program, but are lacking last mile distribution and FTTP premise connections. The areas to be served are all relatively poor, rural, and reside in published unserved/underserved census tracts. By supplying last mile broadband FTTP, BVU/CPC would be able to enhance and increase the opportunities for economic development, job creation, employment, education, health services, business services, and overall quality of life in the affected communities.

This project will bring fiber broadband connectivity to the communities in these areas for the first time. Bringing fiber optic broadband to this area is a compelling case for the following reasons:

- These are the poorest counties in Virginia with earnings levels as low as one third of the incomes in the urban parts of Virginia. Constructing this network in these counties will bring immediate construction jobs, and will give communities the recruitment tools needed to increase employment opportunities.
- It is well documented that bringing fiber broadband creates job opportunities over time. Fiber enables residents to start home-based businesses and allows them to take jobs that include an element of telecommuting. Fiber also allows residents to get the training they need to improve in their current job or to find a new job.
- Fiber will give a huge boost to the educational opportunities for the proposed service areas. Students with dial-up broadband connections have been unable to take advantage of the benefits of the Internet. Fiber optic broadband connectivity will open up vistas for them. Additionally, students will now be able to connect to school data systems to use the resources available at the schools. Finally, all citizens will be able to use the internet for lifelong learning, job training and retraining as well as recreation.
- BVU/CPC’s existing fiber network and the proposed last-mile fiber distribution network are designed with the future in mind, in that the bandwidth can be easily increased with minor technological upgrades to allow bandwidth to always remain world class. Case in point, BVU/CPC currently delivers FTTP broadband speeds of 1 GB, but can upgrade to speeds up to 400 GB with just a few equipment upgrades.

## Company Backgrounds

BVU Authority (BVU), founded in 1945, provides electric, water, wastewater and, since 2001, fiber-optic telecommunication and information services to the City of Bristol, Virginia and the surrounding area. On July 1, 2010, BVU moved from being a board under the direct control of the City of Bristol, to form a new political subdivision of the Virginia state government.

BVU has been recognized as having "one of the best broadband networks in America" by the Institute for Local Self-Reliance. BVU's network is remarkable given the town's small size and its successful bids to build larger cities' fiber-optic grids. BVU is acknowledged as the first municipal utility in the United States to deploy an all-fiber network offering the triple play of video, voice and data services.

CPC Company, formed by the Cumberland Plateau Planning District (CPC), is a regional planning district authorized by the State of Virginia. CPC provides, through BVU as its operational partner, broadband data and phone services in Buchanan, Dickenson, Russell and Tazewell counties in Virginia. CPC’s goal is to improve the quality of life in the region. CPC is a major driver behind economic development in the region and works with the governments in the area to bring jobs and increase the tax base. BVU is the operational partner and has full authority

to operate the business.

Currently, BVU/CPC provides service to over 13,000 customers encompassing over 33,500 services..

BVU/CPC recently completed a 370 mile fiber middle project under the National Telecommunications and Information Administration/Broadband Technology Opportunities Program to install fiber into unserved/underserved areas in an eight county section of Southwest Virginia. The project was completed on time and on budget. This project is the springboard for bringing last mile connections and critical services to these counties.

## Proposed Service Area

The proposed service areas associated with this project includes unserved/underserved areas, as designated by the FCC, in an eight county region in the Appalachian Plateau located in far southwest Virginia. Currently, BVU/CPC has installed 370 miles of backbone fiber in these counties spread across 30 fiber routes.

The following chart lists the affected census tracts served by the above routes along with the number of residential, business, and community anchor institutions.by county.

County	Affected Census Tracts	Residential Passings	Business Passings	Community Anchor Institutions
Bland	51021040100, 51021040200	223	7	9
Buchanan, VA	51027010100, 51027010200, 51027010300, 51027010400, 51027010600, 51027010700	1674	285	25
Dickenson, VA	51051040100, 51051040200, 51051040300, 51051040400	575	38	12
Russell, VA	51167030100, 51167030200, 51167030300, 51167030401, 51167030402, 51167030500, 51167030600	1504	58	18
Smyth, VA	51173030100, 51173030200, 51173030302, 51173030400, 51173030500, 51173030600, 51173030701	1262	93	11
Tazewell, VA	51185010100, 51185020200, 51185020300, 51185020400, 51185020700, 51185020800, 51185020900, 51185021000, 51185021100	1820	85	13
Washington, VA	51191010100, 51191010200, 51191010300, 51191010401, 51191010402, 51191010501, 51191010601, 51191010602, 51191010700, 51191010800, 51191010900	2828	170	35
Wythe, VA	51197050100, 51197050200	808	29	0

### Community Anchor Institutions in Proposed Service Areas

The proposed service areas currently contain 123 Community Anchor Institutions (CAI). These CAI's are critical to their communities and provide vital services and facilities. Providing state-of-the-art broadband services will enhance their ability to service their communities through enhanced technologies

and service offerings such as remote health care and online education.

Community Anchor Institutions within the service areas are:

	Community Support Centers	Government Facilities	Healthcare Providers	Libraries	Public Housing	Public Safety Entities	Schools and Education Centers
Bland	2	2	3			2	
Buchanan	1	3	4			5	12
Dickenson		1	3		1	2	5
Russell	1	3	1		1	6	6
Smyth		1	1	1		4	4
Tazewell	2	1	2			4	4
Washington	4	7	2	3		10	9
Total	10	18	16	4	2	33	40

*Network map with census tract information is located in Appendix A.*

*A complete list of Community Anchor Institutions are located in Appendix B.*

## Technology Platform

Connection and delivery of last mile FTTP will be off BVU/CPC's current network. Current network consists of fully protected, diversely routed, redundant, carrier-class fiber optic rings with multiple distribution spurs. Much of the backbone fiber utilizes Dense Wave Division Multiplex (DWDM) technology for increased bandwidth over traditional Time Division Multiplexing (TDM). The backbone network consists of multiple rings, meaning that the fiber network is "self-healing" in case of a fiber cut. All of the proposed service areas reside on one of thirty distribution spurs off one of the rings, giving greater assurance that service to these areas will not be interrupted due to fiber disruptions.

The current network supports a bandwidth of 200Gbps. However, the electronics being used can be scaled upward to support a bandwidth 400Gbps. The equipment can natively carry 1Gb to 10Gb Ethernet and OC3 to OC192 TDM between various sites

BVU/CPC will be utilizing a GPON fiber network with a combination of Passive Optical Network technology and dedicated fiber to provide voice, data, security and cable services. System can deliver 2.4 Gbps downstream/1.2 Gbps upstream for data and 1 Gbps downstream for video.

The voice network connectivity to the Public Switched Telephone Network (PSTN) is also provided by diversifying links from the current regional voice provider to the primary and secondary aggregation sites. The local physical links to the PSTN utilize both TDM and Session Initiation Protocol (SIP) trunking, but voice service in the proposed areas will use SIP trunking. The internal softswitch has protected call processors that are diversified between the two aggregation sites.

The distribution spurs already consist of distribution convergence cabinets (LCCs) and Network Access Points (NAPs) allowing for more expedient and lower cost FTTP connections. For any off-route subscriber, off-route being more than ½ mile off the backbone fiber, BVU/CPC will utilize wireless last-mile technology. This technology is currently implemented by BVU/CPC in their other service areas.

At each connection BVU/CPC will install an Optical Network Termination (ONT) device. This device is the FTTP electronics that allows the signal from the fiber system to be converted to the signals needed to



deliver the data, phone, and video services. The ONT will also have a battery back-up allowing telephone service during a power outage.

## Service Offerings

BVU/CPC is currently a fiber based full service provider offering broadband internet (data), voice, video, premise automation and premise security products. Being an established provider, BVU/CPC has operating facilities and trained personnel to supply customer service, trouble shooting, maintenance, billing, etc.

For broadband services, BVU/CPC is a functioning ISP and does not need to buy additional equipment to offer end-user products.

For voice services, BVU/CPC supports the current industry voice functions and services such as fax machines, security and medical systems, alerts and monitoring services, credit card billing, 800 number service, making 500, 700, 900, 950, 976 calls, making calling card or dial-around calls, the use of abbreviated dialing codes, reaching an operator by dialing "0", the ability to accept collect calls or third-number billed calls, short message service (SMS) notification services, etc. BVU/CPC currently does not support functions such as ankle bracelets, but has plans to support in the near future.

Video services are IPTV based with a wide range of channels and functions.

Below is an example of the offered products and packages.

Internet / Data Service	
20 Mbps Download x 5 Mbps Upload	\$ 39.95
30 Mbps Download x 5 Mbps Upload	\$ 49.95
50 Mbps Download x 10 Mbps Upload	\$ 59.95
110 Mbps Download x 20 Mbps Upload	\$ 99.95
250 Mbps Download x 30 Mbps Upload	\$ 169.95
1 Gbps Download x 50 Mbps Upload	\$ 319.95

Voice Service	
Voice Service with Unlimited Local and Long Distance	\$ 39.95
Basic Phone Service	\$ 14.64
FAVORITE TEN Calling Features	\$ 14.00
Additional Calling Features (monthly subscription)	\$ 4.00
Caller ID	\$ 5.00
Voicemail	\$ 5.00
CHOICE 200 Long Distance Plan	\$ 12.95
CHOICE 1000 Long Distance Plan	\$ 24.95
CHOICE Unlimited LD Plan	\$ 29.50

Video	
QuantumVu BASIC	\$ 14.50
28 Channels (Including 8 HD Channels), & Broadcast Channels	
QuantumVu EXPANDED	\$ 49.95

187 Channels (Including 61 HD & 48 Digital Music Channels), Broadcast Channels, VOD & PPV	
QuantumVu DIGITAL ESSENTIALS	\$ 59.95
187 Channels (Including 61 HD & 48 Digital Music Channels), VOD, PPV Access, & 1 HD-DVR	
QuantumVu FAMILY	\$ 74.95
253 Channels (Including 72 HD & 48 Digital Music Channels), VOD, PPV Access, & 1 HD-DVR	
QuantumVu HD ENTERTAINMENT	\$ 89.95
Up to 283 Channels (Including up to 80 HD & 48 Digital Music Channels, Digital Tier, HD Plus Tier, Choice of 2 premium channels), VOD, PPV Access, & 1 HD-DVR	
QuantumVu ULTIMATE	\$ 119.95
311 Channels (Including 86 HD & 48 Digital Music Channels, All 5 premium movie channels), VOD, PPV Access, 1 HD/DVR & Whole-Home DVR Service	
<b>Premium Programming</b>	
HBO	\$ 15.95
Cinemax	\$ 14.95
Showtime/TMC.	\$ 14.95
Starz/Encore	\$ 14.95
<b>Cable Equipment Lease</b>	
HD DVR	\$ 14.95
HDTV Converter	\$ 6.95

<b>Premise Automation and Security</b>	
<b>Secure Essentials</b>	\$39.95
2Gig Control 2 W/Gsm, Window/Door Sensors, 4-Button Key Ring, Pir Module	
<b>Secure Plus</b>	\$44.95
2Gig Control 2 W/Gsm, Window/Door Sensors, 4-Button Key Ring, Pir Module, Z-Wave Plug In Lamp Module, Z-Wave Plug In Appliance Module, Z Wave Programmable Thermostat	
<b>Secure Ultimate</b>	\$49.95
2Gig Control 2 W/Gsm, Window/Door Sensors, 4-Button Key Ring, Pir Module, Z-Wave Plug In Lamp Module, Z-Wave Plug In Appliance Module, Z Wave Programmable Thermostat, Indoor Wireless Fixed Ip Camera W/Night Vision	

<b>Packages</b>	
<b>Internet and Voice Double Play</b>	
30 Mbps Download x 5 Mbps Upload / Voice Service with Unlimited Local and Long Distance	\$ 69.95
50 Mbps Download x 10 Mbps Upload / Voice Service with Unlimited Local and Long Distance	\$ 79.95
110 Mbps Download x 20 Mbps Upload / Voice Service with Unlimited Local and Long Distance	\$ 119.95



<b>Internet / Voice / Video Triple Play</b>		
20 Mbps Download X 5 Mbps Upload / Voice Service With Unlimited Local And Long Distance / QuantumVU Expanded		\$ 99.95
30 Mbps Download X 5 Mbps Upload / Voice Service With Unlimited Local And Long Distance / QuantumVU Digital Essentials		\$114.95
30 Mbps Download X 5 Mbps Upload / Voice Service With Unlimited Local And Long Distance / QuantumVU Family		\$ 129.95
50 Mbps Download X 10 Mbps Upload / Voice Service With Unlimited Local And Long Distance / QuantumVU Hd Entertainment		\$ 144.95
50 Mbps Download X 10 Mbps Upload / Voice Service With Unlimited Local And Long Distance / QuantumVU Ultimate		\$ 179.95
<b>Internet / Voice / Home Security Triple Play</b>		
20 Mbps Download X 5 Mbps Upload / Basic Phone Service / Secure Essentials		\$ 99.95
30 Mbps Download X 5 Mbps Upload / Basic Phone Service / Secure Plus		\$ 116.90
50 Mbps Download X 10 Mbps Upload / Basic Phone Service / Secure Ultimate		\$ 129.95

## Regulatory Relief or Authorizations

Many of the authorization needed for fiber build outs have already been negotiated through previous BVU/CPC projects. For buried fiber, BVU/CPC has an on-going agreement with the Virginia Department of Transportation (VDOT) to allow BVU/CPC access to any VDOT rights-of-way. For aerial sections, BVU/CPC has pole attachment agreements with all the pole owners in the eight counties to be served.

The only known critical issue for BVU/CPC in delivering its full suite of products to the subscribers affected by the project is the state approval to amend BVU Authority's current charter to allow video services in these eight counties. BVU currently only has authority to provide video in the city of Bristol, Virginia and the town of Abingdon, Virginia, and a highway corridor connecting the city and town.

## Expected Timeline and Costs

BVU/CPC expects the project would need funding for three years to accomplish the project goals. Areas to be funded are distribution costs (year 1 and year 2 only) and last mile FTTP connection costs. Distribution includes the fiber, network equipment, point-of-presence enclosures, easements, make-ready pole attachments, current fiber backbone upgrades, and the associated labor. Last mile FTTP includes the fiber, ONT's, and labor to connect from the fiber backbone NAP to the residential, business, or community anchor institution premise.

BVU/CPC expects to also contribute to the project funding through various funding mechanisms (BVU Authority funds and continued requests to the Virginia Tobacco Commission). BVU/CPC plans to make capital budget appropriations at an estimated \$400,000 per year over the projected three year project.

BVU/CPC is not requesting any on-going maintenance funding. With its long standing experience in providing fiber based services, BVU/CPC is able to streamline maintenance costs and cover those costs through normal operational costs.

Total Project Costs: Projected last mile connections: 5,554

Distribution costs: \$ 24,544,772  
FTTP Connection costs: \$ 14,398,337  
Total: \$ 38,943,109

BVU/CPC funding: \$ 1,200,000  
**Remaining to be funded: \$ 37,743,109**

Following is a high level breakdown of projected costs and required funding by year.

Year 1: Projected last mile connections: 1,872

Distribution costs: \$ 15,954,102  
FTTP Connection costs: \$ 4,833,854  
Total: \$ 20,787,956

BVU/CPC funding: \$ 400,000  
**Remaining to be funded: \$ 20,387,956**

Year 2: Projected last mile connections: 2,374

Distribution costs: \$ 8,590,670  
FTTP Connection costs: \$ 6,287,199  
Total: \$ 14,877,869

BVU/CPC funding: \$ 400,000  
**Remaining to be funded: \$ 14,477,869**

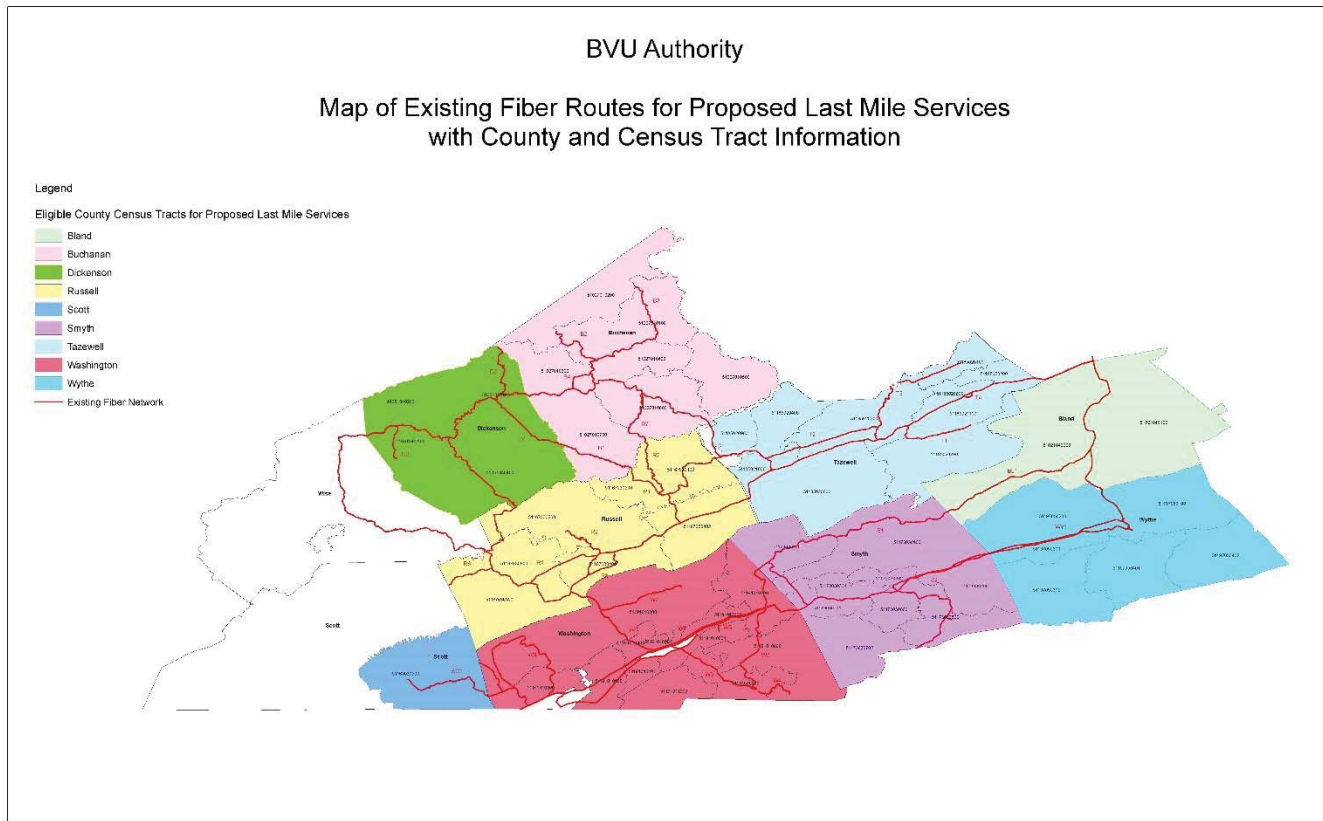
Year 3: Projected last mile connections: 1,308

Distribution costs: \$ 0  
FTTP Connection costs: \$ 3,277,284  
Total: \$ 3,277,284

BVU/CPC funding: \$ 400,000  
**Remaining to be funded: \$ 2,877,284**

*Cost and time breakdown by route is located in Appendix C.*

## Appendix A – Network Overview



## Appendix B – Community Anchor Institutions By County

County	Route	Facility Name	Facility Type
Buchanan	B1	Council Community Center	Community Support
Buchanan	B1	Council Elementary/Middle School	School (K-12)
Buchanan	B1	Council High School	School (K-12)
Buchanan	B1	Council Volunteer Fire Dept.	Public Safety Entity
Buchanan	B2	Grundy Volunteer Fire/Rescue	Public Safety Entity
Buchanan	B2	Riverview Elem/Middle	School (K-12)
Buchanan	B3	Booth Center	Community College
Buchanan	B3	Buchanan Co. Board of Supervisors	Other Government Facility
Buchanan	B3	Buchanan Co. Dept. of Social Services	Other Community Support Organization
Buchanan	B3	Buchanan Co. Health Dept.	Medical or Healthcare Provider
Buchanan	B3	Buchanan Co. Information Park	Other Government Facility
Buchanan	B3	Buchanan Co. Technology & Career Ctr	School (K-12)
Buchanan	B3	Buchanan General Hospital	Medical or Healthcare Provider
Buchanan	B3	Cumberland Mountain Community Services	Medical or Healthcare Provider
Buchanan	B3	Grundy High School	School (K-12)
Buchanan	B3	Hurley Elementary/ Middle School	School (K-12)
Buchanan	B3	Hurley High School	School (K-12)
Buchanan	B3	J.M. Bevins Elementary School	School (K-12)
Buchanan	B3	Knox Creek Volunteer Fire Dept	Public Safety Entity
Buchanan	B3	Mountain Mission School	School (K-12)
Buchanan	B3	Slate Creek Volunteer Fire Dept.	Public Safety Entity
Buchanan	B3	Stone Mountain Health Systems	Medical or Healthcare Provider
Buchanan	B4	Russell Prater Elementary School	School (K-12)
Buchanan	B4	Russell Prater Fire & Rescue	Public Safety Entity
Buchanan	B4	Southern Gap Technology Park	Other Government Facility
Bland	BL1	Bland County Medical Center	Medical or Healthcare Provider
Bland	BL1	Bland County Nursing & Rehabilitation Center	Medical or Healthcare Provider
Bland	BL1	Ceres US Post Office	Other Government Facility
Bland	BL1	Ceres Volunteer Fire Dept	Public Safety Entity
Bland	BL1	George Perry Senior Center	Other Community Support Organization
Bland	BL1	Heartland Rehabilitation Services	Medical or Healthcare Provider
Bland	BL1	National Forestry Warden Office	Other Government Facility
Bland	BL1	Nebo Volunteer Fire Station #2	Public Safety Entity
Bland	BL1	Ruritan National Ceres Club	Other Community Support Organization
Dickenson	D1	Haysi High School	School (K-12)
Dickenson	D1	Haysi Rescue Squad	Public Safety Entity
Dickenson	D1	Sandlick Elementary School	School (K-12)
Dickenson	D1	Stone Mountain Health Systems	Medical or Healthcare Provider
Dickenson	D1	SWVCC Training Center	Community College
Dickenson	D2	Breaks Interstate Park	Other Government Facility
Dickenson	D2	Centennial Heights Apartments	Public Housing
Dickenson	D2	Haysi Volunteer Fire Department	Public Safety Entity
Dickenson	D2	Stone Mountain Health Services	Medical or Healthcare Provider
Dickenson	D3	Dickenson Center for Education & Research	Other Institution of Higher Education
Dickenson	D3	Dickenson County Health Dept.	Medical or Healthcare Provider
Dickenson	D3	Long's Fork Elementary School	School (K-12)
Russell	E911	Central Office	Public Safety Entity

Russell	R1	C-Health Medical	Medical or Healthcare Provider
Russell	R1	Russell Co. Emergency Services	Public Safety Entity
Russell	R1	Town Square Apartments	Public Housing
Russell	R2	Cleveland Elementary School	School (K-12)
Russell	R2	Cleveland Lifesaving Crew	Public Safety Entity
Russell	R2	Cleveland Volunteer Fire Department	Public Safety Entity
Russell	R3	Russell Co. Water Treatment Plant	Other Government Facility
Russell	R3	Tri County Driving Academy	Other Institution of Higher Education
Russell	R4	Cumberland Plateau Planning District Comm.	Other Community Support Organization
Russell	R4	Russell Co. E911 Services	Public Safety Entity
Russell	R4	VA Dept. of Transportation	Other Government Facility
Russell	R5	Copper Creek Elementary School	School (K-12)
Russell	R5	Copper Creek/Moccasin Volunteer Fire Dept.	Public Safety Entity
Russell	R6	Castlewood Elementary	School (K-12)
Russell	R7	Givens Elementary	School (K-12)
Russell	R7	Russell County Public Service Authority	Other Government Facility
Russell	R7	Swords Creek Elementary School	School (K-12)
Smyth	S1	Nebo Volunteer Fire Rich Valley Station #1	Public Safety Entity
Smyth	S1	Northwood High School	School (K-12)
Smyth	S1	Northwood Middle School	School (K-12)
Smyth	S1	Rich Valley Elementary School	School (K-12)
Smyth	S1	Saltville Branch & Public Library	Library
Smyth	S1	Saltville Elementary School	School (K-12)
Smyth	S1	Saltville Medical Center	Medical or Healthcare Provider
Smyth	S1	Saltville Police Dept	Public Safety Entity
Smyth	S1	Saltville Rescue Squad	Public Safety Entity
Smyth	S1	Saltville Town Hall	Other Government Facility
Smyth	S1	VDOT Broadford Area Head Quarters	Public Safety Entity
Tazewell	T1	Burke's Garden Telephone Co.	Other Community Support Organization
Tazewell	T1	Carilion Tazewell County Hospital	Medical or Healthcare Provider
Tazewell	T1	Four Seasons YMCA	Other Community Support Organization
Tazewell	T1	Tazewell Co. Health Department	Medical or Healthcare Provider
Tazewell	T1	Tazewell County Fire Department	Public Safety Entity
Tazewell	T2	Baptist Valley Fire Department	Public Safety Entity
Tazewell	T2	North Tazewell Elementary School	School (K-12)
Tazewell	T3	Abb's Valley Volunteer Fire Department	Public Safety Entity
Tazewell	T3	Abb's Valley-Boissevain	School (K-12)
Tazewell	T3	Pocahontas Fuel Building	Other Institution of Higher Education
Tazewell	T3	Rescue 945	Public Safety Entity
Tazewell	T4	Bluestone Technology Park	Other Government Facility
Tazewell	T4	Springville Elementary School	School (K-12)
Washington	W1	Emory US Post Office	Other Government Facility
Washington	W1	Emory/Henry College	Community College
Washington	W1	Glade Spring Branch Library	Library
Washington	W1	Glade Spring Fire Department	Public Safety Entity
Washington	W1	Glade Spring Middle School	School (K-12)
Washington	W1	Glade Spring Police Dept	Public Safety Entity
Washington	W1	Glade Spring Town Hall	Other Government Facility
Washington	W1	Glade Spring US Post Office	Other Government Facility
Washington	W1	Glade Spring Volunteer Life Saving Crew	Public Safety Entity
Washington	W1	Meadowview Health Clinic	Medical or Healthcare Provider
Washington	W1	Meadowview US Post Office	Other Government Facility

Washington	W1	Meadowview Volunteer Fire	Public Safety Entity
Washington	W1	Patrick Henry High School	School (K-12)
Washington	W1	Virginia Tech Ag Research/Extension Center	Other Community Support Organization
Washington	W2	Holston High School	School (K-12)
Washington	W2	Rhea Valley Elementary School	School (K-12)
Washington	W3	Damascus Library	Library
Washington	W3	Damascus Middle School	School (K-12)
Washington	W3	Damascus Police Department	Public Safety Entity
Washington	W3	Damascus Town Fire Department	Public Safety Entity
Washington	W3	Damascus Town Hall	Other Government Facility
Washington	W3	Holston Family Health	Medical or Healthcare Provider
Washington	W3	Washington County Service Authority	Other Government Facility
Washington	W3	Washington County Water Treatment Facility	Other Government Facility
Washington	W4	Taylors Valley Community Center	Other Community Support Organization
Washington	W5	Meadowview Elementary School	School (K-12)
Washington	W6	Goodson Kinderhook Volunteer Fire Dept Station #2	Public Safety Entity
Washington	W7	Brumley Gap Volunteer Fire Department	Public Safety Entity
Washington	W7	Clinch Mountain Volunteer Fire Department	Public Safety Entity
Washington	W7	Hayters Gap Children Development Facility Head Start	School (K-12)
Washington	W7	Hayters Gap Community Center	Other Community Support Organization
Washington	W7	Hayters Gap Library	Library
Washington	W7	Hayters Gap Senior Center	Other Community Support Organization
Washington	W7	Valley Rescue Squad	Public Safety Entity
Washington	W8	Greedale Elementary School	School (K-12)

## Appendix C – Time and Cost Detail

Year 1										Year 2					Year 3		
County	Route ID	On Off Route	Total Miles	Total Possible Connects	Projected Last Mile Connects	Distribution Costs*	Last Mile Connect Costs	Total Year 1	Projected Last Mile Connects	Distribution Costs*	Last Mile Connect Costs	Total Year 2	Projected Last Mile Connects	Last Mile Connect Costs	Total Year 3		
Tazewell VA	T2	On	13.90	626	157	821,574	157,000	978,574	125	442,386	125,000	567,386	63	63,000	63,000		
		Off	6.30	358	90	-	375,404	375,404	72	-	300,323	300,323	36	150,161	150,161		
		Total	20.20	984	247	821,574	532,404	1,353,978	197	442,386	425,323	867,709	99	213,161	213,161		
Smyth VA	S1	On	23.90	419	105	1,360,321	105,000	1,465,321	84	732,480	84,000	816,480	42	42,000	42,000		
		Off	9.00	432	108	-	450,484	450,484	86	-	358,719	358,719	43	179,359	179,359		
		Total	32.90	851	213	1,360,321	555,484	1,915,805	170	732,480	442,719	1,175,199	85	221,359	221,359		
Buchanan, VA	B3	On	17.80	472	118	1,028,075	118,000	1,146,075	94	553,579	94,000	647,579	47	47,000	47,000		
		Off	9.90	344	86	-	358,719	358,719	69	-	287,809	287,809	34	141,819	141,819		
		Total	27.70	816	204	1,028,075	476,719	1,504,794	163	553,579	381,809	935,388	81	188,819	188,819		
Smyth VA	S2	On	12.00	349	87	689,136	87,000	776,136	70	371,073	70,000	441,073	35	35,000	35,000		
		Off	2.80	157	39	-	162,675	162,675	31	-	129,306	129,306	16	66,738	66,738		
		Total	14.80	506	126	689,136	249,675	938,811	101	371,073	199,306	570,379	51	101,738	101,738		
Washington, VA	W1	On	13.70	303	76	798,395	76,000	874,395	61	429,905	61,000	490,905	30	30,000	30,000		
		Off	16.80	735	184	-	767,492	767,492	147	-	613,159	613,159	74	308,665	308,665		
		Total	30.50	1038	260	798,395	843,492	1,641,887	208	429,905	674,159	1,104,064	104	338,665	338,665		
Buchanan, VA	B2	On	12.70	317	79	711,450	79,000	790,450	63	383,089	63,000	446,089	32	32,000	32,000		
		Off	8.20	420	105	-	437,971	437,971	84	-	350,377	350,377	42	175,188	175,188		
		Total	20.90	737	184	711,450	516,971	1,228,421	147	383,089	413,377	796,466	74	207,188	207,188		
Wythe, VA	WY1	On	15.70	214	54	900,959	54,000	954,959	43	485,132	43,000	528,132	21	21,000	21,000		
		Off	12.10	627	157	-	654,871	654,871	125	-	521,394	521,394	63	262,782	262,782		
		Total	27.80	841	211	900,959	708,871	1,609,830	168	485,132	564,394	1,049,526	84	283,782	283,782		
Tazewell, VA	T3	On	13.30	215	54	775,987	54,000	829,987	43	417,839	43,000	460,839	22	22,000	22,000		



		Off	5.60	266	67	-	279,467	279,467	53	-	221,071	221,071	27	112,621	112,621
		Total	18.90	481	121	775,987	333,467	1,109,454	96	417,839	264,071	681,910	49	134,621	134,621
Buchanan, VA	B1	On	9.60	188	47	537,789	47,000	584,789	38	289,579	38,000	327,579	19	19,000	19,000
		Off	2.20	61	15	-	62,567	62,567	12	-	50,054	50,054	6	25,027	25,027
		Total	11.80	249	62	537,789	109,567	647,356	50	289,579	88,054	377,633	25	44,027	44,027
		On	19.60	167	42	1,107,461	42,000	1,149,461	33	596,325	33,000	629,325	17	17,000	17,000
Bland	BL1	Off	2.40	63	16	-	66,738	66,738	13	-	54,225	54,225	6	25,027	25,027
		Total	22.00	230	58	1,107,461	108,738	1,216,199	46	596,325	87,225	683,550	23	42,027	42,027
		On	3.70	161	40	207,273	40,000	247,273	32	111,608	32,000	143,608	16	16,000	16,000
		Off	0.00	0	-	-	-	-	-	-	-	-	-	-	-
Dickenson, VA	D3	Total	3.70	161	40	207,273	40,000	247,273	32	111,608	32,000	143,608	16	16,000	16,000
		On	7.20	165	41	434,267	41,000	475,267	33	233,836	33,000	266,836	17	17,000	17,000
		Off	7.80	172	43	-	179,359	179,359	34	-	141,819	141,819	17	70,910	70,910
		Total	15.00	337	84	434,267	220,359	654,626	67	233,836	174,819	408,655	34	87,910	87,910
Russell, VA	R4	On	8.70	150	38	487,371	38,000	525,371	30	262,431	30,000	292,431	15	15,000	15,000
		Off	3.20	96	24	-	100,108	100,108	19	-	79,252	79,252	10	41,712	41,712
		Total	11.90	246	62	487,371	138,108	625,479	49	262,431	109,252	371,683	25	56,712	56,712
		On	5.90	131	-	330,516	-	330,516	33	177,970	33,000	210,970	26	26,000	26,000
Russell, VA	R6	Off	2.80	137	-	-	-	-	27	-	112,621	112,621	14	58,396	58,396
		Total	8.70	268	-	330,516	-	330,516	60	177,970	145,621	323,591	40	84,396	84,396
		On	6.20	146	-	347,322	-	347,322	37	187,020	37,000	224,020	29	29,000	29,000
		Off	5.60	296	-	-	-	-	59	-	246,098	246,098	30	125,135	125,135
Tazewell, VA	T1	Total	11.80	442	-	347,322	-	347,322	96	187,020	283,098	470,118	59	154,135	154,135
		On	9.90	139	-	585,520	-	585,520	35	315,280	35,000	350,280	28	28,000	28,000
		Off	14.30	702	-	-	-	-	140	-	583,961	583,961	70	291,981	291,981
		Total	24.20	841	-	585,520	-	585,520	175	315,280	618,961	934,241	98	319,981	319,981
Russell, VA	R7	On	7.70	130	-	457,726	-	457,726	33	246,468	33,000	279,468	26	26,000	26,000

		Off	3.40	141	-	-	-	-	-	28	-	116,792	116,792	14	58,396	58,396
		Total	11.10	271	-	457,726	-	457,726	-	61	246,468	149,792	396,260	40	84,396	84,396
Washington, VA	W7	On	10.60	247	-	593,809	-	593,809	-	62	319,743	62,000	381,743	49	49,000	49,000
		Off	1.80	41	-	-	-	-	-	8	-	33,369	33,369	4	16,685	16,685
		Total	12.40	288	-	593,809	-	593,809	-	70	319,743	95,369	415,112	53	65,685	65,685
Dickenson, VA	D1	On	10.70	132	-	625,785	-	625,785	-	33	336,961	33,000	369,961	26	26,000	26,000
		Off	0.30	14	-	-	-	-	-	3	-	12,513	12,513	1	4,171	4,171
		Total	11.00	146	-	625,785	-	625,785	-	36	336,961	45,513	382,474	27	30,171	30,171
Russell, VA	R1	On	5.70	118	-	319,312	-	319,312	-	30	171,937	30,000	201,937	24	24,000	24,000
		Off	3.40	139	-	-	-	-	-	28	-	116,792	116,792	14	58,396	58,396
		Total	9.10	257	-	319,312	-	319,312	-	58	171,937	146,792	318,729	38	82,396	82,396
Washington, VA	W2	On	12.70	120	-	720,925	-	720,925	-	30	388,190	30,000	418,190	24	24,000	24,000
		Off	9.10	411	-	-	-	-	-	82	-	342,034	342,034	41	171,017	171,017
		Total	21.80	531	-	720,925	-	720,925	-	112	388,190	372,034	760,224	65	195,017	195,017
Russell, VA	R2	On	6.50	108	-	373,603	-	373,603	-	27	201,171	27,000	228,171	22	22,000	22,000
		Off	3.80	137	-	-	-	-	-	27	-	112,621	112,621	14	58,396	58,396
		Total	10.30	245	-	373,603	-	373,603	-	54	201,171	139,621	340,792	36	80,396	80,396
Washington, VA	W6	On	10.00	78	-	581,647	-	581,647	-	20	313,194	20,000	333,194	16	16,000	16,000
		Off	3.00	65	-	-	-	-	-	13	-	54,225	54,225	7	29,198	29,198
		Total	13.00	143	-	581,647	-	581,647	-	33	313,194	74,225	387,419	23	45,198	45,198
Russell, VA	R3	On	5.10	73	-	295,175	-	295,175	-	18	158,941	18,000	176,941	15	15,000	15,000
		Off	4.50	205	-	-	-	-	-	41	-	171,017	171,017	21	87,594	87,594
		Total	9.60	278	-	295,175	-	295,175	-	59	158,941	189,017	347,958	36	102,594	102,594
Dickenson, VA	D2	On	7.00	66	-	392,138	-	392,138	-	17	211,151	17,000	228,151	13	13,000	13,000
		Off	1.90	66	-	-	-	-	-	13	-	54,225	54,225	7	29,198	29,198
		Total	8.90	132	-	392,138	-	392,138	-	30	211,151	71,225	282,376	20	42,198	42,198
Washington, VA	W8	On	0.80	38	-	44,816	-	44,816	-	10	24,132	10,000	34,132	8	8,000	8,000

		Off	0.00	0	-	-	-	-	-	-	-	-	-	-	-	-	-
		Total	0.80	38	-	44,816	-	44,816	10	24,132	10,000	34,132	8	8,000	-	8,000	8,000
Washington, VA	W5	On	1.10	21	-	61,622	-	61,622	5	33,181	5,000	38,181	4	4,000	-	4,000	4,000
		Off	0.00	0	-	-	-	-	-	-	-	-	-	-	-	-	-
		Total	1.10	21	-	61,622	-	61,622	5	33,181	5,000	38,181	4	4,000	-	4,000	4,000
		On	6.50	5	-	364,128	-	364,128	1	196,069	1,000	197,069	1	1,000	-	1,000	1,000
Washington, VA	W4	Off	2.40	100	-	-	-	-	20	-	83,423	83,423	10	41,712	-	41,712	41,712
		Total	8.90	105	-	364,128	-	364,128	21	196,069	84,423	280,492	11	42,712	-	42,712	42,712
					1,872	15,954,102	4,833,854	20,787,956	2,374	8,590,670	6,287,199	14,877,869	1,308	3,277,284	-	3,277,284	3,277,284

<b>BVU/CPC Funding**</b>	400,000	<b>BVU/CPC Funding**</b>	400,000	<b>BVU/CPC Funding**</b>	400,000
<b>Remaining To Be Funded</b>	20,387,956	<b>Remaining To Be Funded</b>	14,477,869	<b>Remaining To Be Funded</b>	2,877,284

<b>Total Remaining to be Funded:</b>	<b>\$ 37,743,109</b>
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\* Distribution Costs include Fiber, Equipment, Point-of-Presence Huts, Easements, Make-Ready Poles, Equipment, and Backbone Upgrades

\*\* BVU/CPC Funding (BVU Authority Funds, Virginia Tobacco Commission, Economic Development Administration)